When 100 ml of ethyl acetate are distilled by this method, none shall distill below 70 °C., not more than 10 ml shall distill below 72 °C., and none above 80 °C.

(b) *100 percent ester:*

(1) *Acidity (as acetic acid).* Not more than 0.010 percent by weight.

(2) *Color.* Colorless.

(3) *Odor.* Characteristic odor.

(4) *Ester content.* Not less than 99 percent by weight.

(5) *Specific gravity at 20 °/20 °C.* Not less than 0.899.

(6) *Distillation range.* (For applicable ASTM method, see 1980 Annual Book of ASTM Standards, Part 29, page 433, Standard No. D 3127–77; for incorporation by reference, see §21.6(b).) When 100 ml of ethyl acetate are distilled by this method, not more than 2 ml shall distill below 75 °C., and none above 80 °C. (760 mm).

§ 21.107 Ethyl ether.

(a) *Odor.* Characteristic odor.

(b) *Specific gravity at 15.56 °/15.56 °C.* Not more than 0.728.

§ 21.108 Gasoline.

(a) *Distillation range.* When 100 ml of gasoline are distilled, none shall distill below 90 °F. Not more than 5 ml shall be collected below 140 °F., and not less than 50 ml shall distill below 230 °F.

(b) *Odor.* Characteristic odor.

§ 21.109 Gasoline, unleaded.

Conforms to specifications as established by the American Society for Testing and Materials (ASTM) in the 1980 Annual Book of ASTM Standards, Part 23, page 229, Standard No. D 439–79. Any of the ''seasonal and geographical'' volatility classes for unleaded gasoline are considered suitable as a denaturant. (For incorporation by reference, see §21.6(b).)

§ 21.110 Gentian violet.

(a) Gentian violet (methyl violet, methylrosaniline chloride) occurs as a dark green powder or crystals having metallic luster.

(b) *Arsenic content.* Not more than 15 ppm. (as As_2O_3) as determined by the applicable U.S.P. method.

(c) *Identification test.* Sprinkle about 1 mg of sample on 1 ml of sulfuric acid; it dissolves in the acid with an orange or brown-red color. When this solution is diluted cautiously with water, the color changes to brown, then to green, and finally to blue.

(d) *Insoluble matter.* Not to exceed 0.25 percent when tested by the following method:

Transfer 1.0 gram of sample to a 150 ml beaker containing 50 ml of alcohol. Stir to complete solution and filter through a weighed Whatman No. 4 filter paper. Wash residue with small amounts of alcohol totaling about 50 ml. Dry paper in oven for 30 minutes at 80 °C. and weigh. Calculate insoluble material.

§ 21.111 Heptane.

(a) *Distillation range.* No distillate should come over below 200 °F. and none above 211 °F.

(b) *Odor.* Characteristic odor.

§ 21.112 Isopropyl alcohol.

Specific gravity at 15.56 °/15.56 °C. 0.810 maximum.

§ 21.113 Kerosene.

(a) *Distillation range.* (For applicable ASTM method, see 1980 Annual Book of ASTM Standards, Part 25, page 395, Standard No. D 3699–78 for burner fuel; see Part 23, page 849, Standard Nos. D 1655–80a for aviation turbine fuels and D 86–78 for distillation of petroleum products; for incorporation by reference, see §21.6(b).) No distillate should come over below 340 °F. and none above 570 °F.

(b) *Flash point.* 115 °F. minimum.

(c) *Odor.* Characteristic odor.

§ 21.114 Kerosene (deodorized).

(a) *Distillation range.* No distillate should come over below 340 °F. and none above 570 °F.

(b) *Flash point.* 155 °F. minimum.

§ 21.115 Methyl alcohol.

Specific gravity at 15.56 °/15.56 °C. 0.810 maximum.

§ 21.116 Methyl isobutyl ketone.

(a) *Acidity (as acetic acid).* 0.02 percent by weight, maximum.

(b) *Color.* Colorless.

(c) *Distillation range.* (For applicable ASTM method, see 1980 Annual Book of

ASTM Standards, Part 29, page 147, Standard No. D 1153–77; for incorporation by reference, see §21.6(b).) No distillate should come over below 111 °C. and none above 117 °C.

(d) *Odor.* Characteristic odor.

(e) *Specific gravity at 20 °/20 °C.* 0.799 to 0.804.

§ 21.117 Methyl n-butyl ketone.

(a) *Acidity (as acetic acid).* 0.02 percent by weight, maximum.

(b) *Color.* Colorless.

(c) *Odor.* Characteristic odor.

(d) *Refractive index at 20 °C.* 1.396 to 1.404.

(e) *Specific gravity at 20 °/20 °C.* 0.800 to 0.835.

(f) *Distillation range.* No distillate should come over below 123 °C. and none above 129 °C.

§ 21.118 Nicotine solution.

(a) *Composition.* Five gallons of an aqueous solution containing 40 percent nicotine; 3.6 avoirdupois ounces of methylene blue, U.S.P.; water sufficient to make 100 gallons.

(b) *Color.* One ml of the nicotine solution (previously agitated in the presence of air) is measured into 100 ml of water and thoroughly mixed. Fifty ml of this colored solution is compared, using Nessler tubes, with 50 ml of a standard color solution containing 5 grams of $CuSO_4 \bullet 5H_2O$, C.P. in 100 ml of water. The color intensity of the solution tested should be equal to or greater than that of the standard solution.

(c) *Nicotine content.* The above solution must contain not less than 1.88 percent of nicotine determined by the following process: 20 ml of the solution are measured into a 500 ml Kjeldahl flask provided with a suitable bulb tube, 50 ml of 0.1 N NaOH added and the mixture distilled in a current of steam until the distillate is no longer alkaline (about 500 ml). The distillate is then titrated with 0.1 N H_2SO_4 using rosolic acid or methyl red as indicator. Not less than 23.2 ml should be required for neutralization.

§ 21.119 Nitropropane, mixed isomers of.

(a) *Nitropropane content.* A minimum of 94 percent by weight.

(b) *Total nitroparaffin content.* A minimum of 99 percent by weight.

(c) *Distillation range.* 119 ° to 113 °C.

(d) *Specific gravity at 20 °/20 °C.* 0.992 to 1.003.

§ 21.120 Phenyl mercuric benzoate.

(a) *Assay (as phenyl mercuric benzoate).* Not less than 99.0 percent by weight.

(b) *Melting point.* Not less than 94 °C.

§ 21.121 Pyridine bases.

(a) *Alkalinity.* One ml of pyridine bases dissolved in 10 ml of water is titrated with 1 N H_2SO_4 until a drop of the mixture placed upon Congo paper shows a distinct blue border, which soon disappears. A minimum of 9.5 ml of the acid must be required for the end point. (Congo paper: filter paper treated with 0.1 percent aqueous solution of Congo red and dried.)

(b) *Distillation range.* One hundred ml of the denaturant are distilled in the following manner: The sample is placed in a short-necked glass flask of about 200 ml capacity which is rested on an asbestos plate having a circular opening of 30 mm in diameter. The neck of this flask is fitted with a fractionating tube 12 mm in diameter and 170 mm long and having a bulb just 1 cm below the side tube which is connected with a Liebig condenser having a water jacket not less than 400 mm in length. A standardized thermometer is placed in the fractionating tube so that the mercury bulb is suspended in the center of the fractionating bulb. Heat is applied slowly and in such manner that 5 ml of distillate is collected per minute in a graduated cylinder. At least 50 ml must distill at or below 140 °C. and at least 90 ml below 160 °C.

(c) *Reactions.* Dissolve 1 ml of pyridine bases in 100 ml of water.

(1) Ten ml of this solution are treated with 5 ml of 5 percent aqueous solution of anhydrous fused $CaCl_2$ and the mixture vigorously shaken. An abundant crystalline separation should occur within 10 minutes.

(2) Ten ml of the pyridine solution mixed with 50 ml of Nessler's reagent must give a white precipitate.

(d) *Water content.* Twenty ml of pyridine bases are shaken with 20 ml of a caustic soda solution having a specific